

COMPUTER WORKSHOP

INTRODUCTION

A hard disk image is the most thorough backup you can make. An image is an exact copy of your hard disk, complete with all your files, programs and system settings. If your Windows installation becomes corrupt or your hard disk fails, you don't have to go to the trouble of reinstalling everything from scratch to get your PC working again; you can simply restore from the hard disk image.

It's also useful to make an image of your system disk after you've just installed (or reinstalled) Windows and all your system drivers, as it makes it easy to get your PC back to a pristine state if it needs cleaning up.

Most disk-cloning utilities are commercial software, but as long as you're running Windows XP and not Vista, it's possible to clone your hard disk for free using the DrivelImage XML program.

In this month's *Computer Workshop* we explain how to create and restore full system backups using DrivelImage XML, so your data is safe and you can be up and running again as quickly as possible should the worst happen.

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Back up your PC for free

Taking an image of your PC's hard disk enables you to recover from a disaster easily. Chris Finnamore explains how to do this for free with DrivelImage XML

1 Download the DrivelImage XML installer from www.runtime.org/dixml.htm and run it. Follow the instructions in the installer program. Once the program is installed, there will be a DrivelImage XML icon in the Runtime Software program group in the Start menu. Run the program.

DrivelImage XML is split into several sections, each of which is accessed by the buttons in the bottom left-hand corner of the window. The Backup section lets you back up the contents of a drive to an image file, the Restore option restores a drive from an image file, and Drive to Drive will clone one hard disk to another.

The Drive to Drive option is useful only if you've just fitted a new hard disk and you want to copy the contents of your current drive to it, so we will concentrate on the more useful Backup and Restore options. Finally, the Browse option lets you view the contents of image files and extract individual files from the backup.

2 To back up your hard disk and all its contents to an image file, follow these steps. If you're backing up to an external drive, close DrivelImage XML, plug in the drive and run DrivelImage XML again, as the program can't automatically mount external drives. Then click on the Backup button. The right-hand section of the screen will change to show a list of the drives in

your PC, and you can click on each drive to view additional information about the drive.

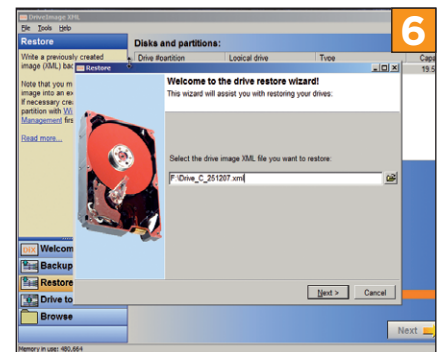
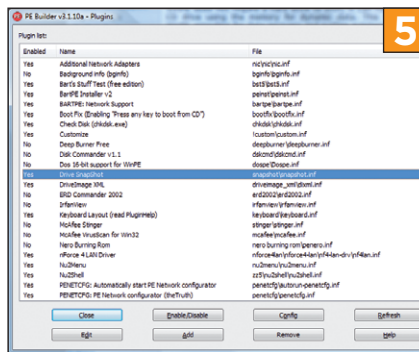
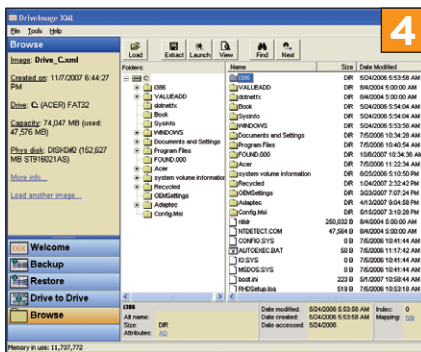
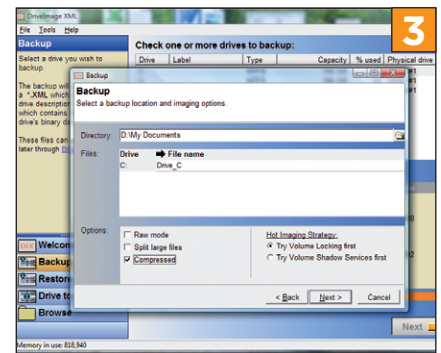
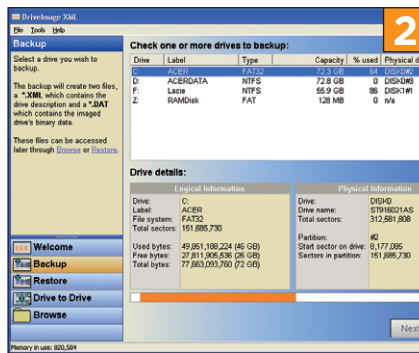
You can back up a drive to an image file on the same drive and partition, to a different partition on the same physical drive or to a different drive entirely. Backing up to the same drive makes sense only if you're then going to burn the image to CD or DVD, as you'll lose your backup if the hard disk fails. Backing up your system partition to a different partition on the same physical disk could be useful if you're more worried about your Windows installation becoming corrupt than your hard disk failing, as you'll be able to restore the system partition from your image. Finally, the most secure option is to back up your entire hard disk to a separate physical disk, either inside your PC or connected externally via USB.

Select the drive you want to back up. Look in the 'Used bytes' field in the window below the list to see how much space is taken up on the drive. You'll need this much room on the destination drive. When you've selected the drive to back up and have enough room on the backup destination drive, click Next.

3 The Backup wizard will now load and show information about the drive to be backed up. Click Next. In the following screen, browse to the location that you want to save your image file to by



▲ DrivelImage XML lets you take a complete backup of your PC, including your operating system and applications



clicking the folder icon on the right of the Directory field. You can also change the filename of the image by clicking in the File name box and typing in a name. It's worth naming the image after the drive you're backing up and the date of the backup; for example, `Drive_C_251207`.

There are a number of options at the bottom of the window. Raw mode will copy the entire contents of the hard disk to the image file, including the disk's free space. An image file created in Raw mode will be enormous, so it's best to leave this option unticked. The Split large files option will split the image into CD-sized chunks so you can write them to a set of discs. Unfortunately, there's no option to split the image into DVD-sized chunks, but you can always use WinRAR (www.rarlab.com) to split the image file after you've created it. As a typical Windows XP installation will take around 40 CDs to back up, we'd recommend leaving this option unticked. However, it's worth ticking the Compression box. With compression enabled, creating the image takes longer, but it can make the image up to 40 per cent smaller.

Finally, select which Hot Imaging Strategy you want to use first when creating the backup. As Drivelmage XML creates an image of a disk that is currently in use, it needs to find a way of locking the files that are in use so they can't be modified during the backup process. If any files were to be modified, the backup could become corrupt. The Volume Locking option locks the part of the disk that is in use, while the Volume Shadow Services option creates a snapshot of the part of the drive that is in use, which is added to the backup image and then deleted.

Depending on which option you select, Drivelmage XML will either try Volume Locking or Volume Shadow Services first, and if it can't get one method to work it will try the other. We'd recommend leaving the option set to Volume Locking, as it's quicker to lock the disk than to create a shadow copy.

Once you've set the options, click Next. The program will copy the disk's contents to a .dat file and create an .xml file listing its contents. Click Finish. Drivelmage will create the backup.

4 If you want to view the contents of your backup image once the backup is complete, click the Browse button, browse to the .xml file in the folder in which you saved your image and open it. The program will scan the image file and show you the contents in a Windows Explorer-style directory tree. You can use the Browse function to extract individual files from the backup, view text files or even run applications.

To view a file or launch a program you can just double-click on the file, but to extract a file you'll need to click on the file to select it, then click the Extract button. Browse to where you want to save the file, then click OK.

Using the Browse function is useful when you just need to recover an individual file from an image and don't want to copy the entire image back to your hard disk.

5 It's not possible to restore a system disk from a backup if Windows is running from the system disk, so you'll need to create a boot CD containing Drivelmage XML to restore your system disk from an image. To do this, you need to create a Windows XP boot CD using the PE Builder program, as described in last month's *Computer Workshop* (which is included on the cover disc), and use the Drivelmage XML plug-in.

First, download the plug-in from www.runtime.org/driveimage_xml.cab. Follow the instructions in last month's *Computer Workshop* to create a live XP CD, but before you burn the live CD save the Drivelmage XML plug-in to the !custom directory and make sure the plug-in is enabled by clicking the Plugins button, clicking Add, selecting driveimage_xml.cab, clicking Open and clicking OK. You can now build the Live CD as normal, and it will now contain the Drivelmage XML plug-in.

6 To restore your system disk from your image file, make sure the drive containing the image is connected to your PC, then boot from the live CD you've created. Once you've booted from the live CD, you'll be able to run Drivelmage XML from the Programs menu.

Click the Restore button. Before you can restore the image to the system disk, you'll need to make your system disk bootable. Click the Windows Disk Management link on the left. If your disk already has a partition, right-click on it and click Mark as Active to make it bootable.

If your disk doesn't have a partition yet, you'll need to create one. Right-click on the part of your disk marked as Unallocated and click New Partition. Click Next, then select Primary partition and click Next again. Enter the size of the partition, or leave the default to make the whole disk one partition. Click Next. You can now assign a drive letter, or just leave the default and click Next. The next screen gives you the option to format the partition, but Drivelmage XML doesn't need a formatted partition to restore an image, so select 'Do not format this partition' and click Next again, then Finish. You'll get a warning message about restarting your PC, but you don't need to do this, so click OK to dismiss the message. Then right-click on your new partition and select Mark as Active.

Close Disk Management to go back to Drivelmage XML. Click the restore button in the bottom left-hand corner, then click Next. Click the open icon, then browse to the .xml image file you want to restore. Double-click on the image file, then click Next. Select the disk or partition where you want to restore the image to and click Next. In the following screen, carefully check that the source image file and the destination disk are correct, then click Next again. Drivelmage XML will give you a final warning that all the data on the destination disk will be destroyed and will prompt you to type in the name of the destination disk to continue. Follow the instructions to type in the name of the disk and click OK.

The name of the destination disk will contain a hash character (#). As the live CD is set to an American keyboard by default, the # may not be where you expect it to be. If this is the case, press Shift-3 to enter the # symbol. The program will restore the image to your disk. Once it's done, click Finish and restart your PC to boot from the restored system disk. 